

July 7, 2009

To: Washington State Building Code Council

RE: Proposed Revisions to Section 1531 and Table 15-1
Minority Report

This report is in response to the approved motion for revisions to the lighting power allowances (LPAs) in the upcoming 2009 Washington State Energy Code. It is the opinion of the authors of this report that to incorporate the approved LPAs, ignoring the consensus opinion of lighting professionals, engineers and the design and construction industry who are responsible for their implementation, is irresponsible. Doing so will negatively affect construction for the sake of a percentage goal that has little or no defensible research behind it.

The design community is very much in agreement with the goal of energy reduction but we want it to be accomplished in a wise, well planned and manageable way; taking steps which track with current research, recommended practice and economic astuteness. We have to provide designs that meet a variety of concerns including constructability, quality of the visual environment, cost effectiveness, and maintenance as well as energy efficiency. In the attached document are our recommendations for LPAs based on review of existing projects, design models, recommended practices and designs that are either in current use or proposed. We evaluated this information, looked at the cost impacts based on historical data and are making recommendations that will allow us to reach future goals in energy efficiency without sacrificing the needs of the public and the quality of the lighted environment.

Some of the concerns and recommendations of this group are:

- Instant start ballasts are used to develop the approved LPAs in Michael Lane's proposal (09-064). Instant start ballasts are not recommended by their manufacturers for use with occupancy sensors due to shortened lamp life and decreased system efficiency. Occupancy sensors are required in many spaces and the energy savings they generate are greater than the reduced connected load from using instant start ballasts. It is not practical to specify two different ballasts in the same project for similar fixtures and expect that they will be properly installed.
- Dimming ballasts are now part of the recommended action for daylight zones along with step switching but dimming ballast technology will not meet the watts/ballast ratings used to develop the LPAs. The connected load for a dimming ballast can be as much as 15% greater than an instant start ballast for the same lamps. Again, the potential savings from the dimming ballasts is greater so we feel it's imperative for the LPAs to accommodate their use.
- The approved LPAs were arrived at using high efficiency lensed troffers and the most efficient lamp and ballast technology available. However, this scenario does not address

- quality of the visual environment such as direct or reflected glare, veiling reflections and visual comfort. Ignoring these important factors could leave employers and building owners open to lawsuits from workers who are adversely affected by poor quality of lighting.
- The building types with the greatest percentage of square footage should provide the greatest amount of savings realized (i.e. big box retail, convention centers, and schools).
 - Implementation of automatic controls is an avenue to the greatest energy savings that is currently available to us. This is where we recommend that the strongest emphasis be placed and it should apply to both lighting and HVAC systems. As new energy efficient technologies that are in their early stages come on line (i.e. personal energy controls) the energy code must take advantage of implementing them in a way that gives benefit to the users and helps incorporate them faster.
 - There should be requirements for nightlight and egress path circuits to be turned off after hours when the buildings are unoccupied. Recent studies have shown this to be a problem in as much as 20-30% of buildings. Even if only 10% of the lighting is affected this can be a large amount of load burning 24 hours a day.
 - Allowances for variable ceiling heights (footnotes 2, 3 and 5) should be maintained. As LPAs are reduced this becomes more critical. As an example retail spaces of equal area that are 12' and 20' cannot be adequately illuminated with the same LPA. Light levels will be inadequate in the higher ceiling spaces without them.
 - We also feel that footnote 7 allowing increased wattage for offices and conference rooms less than 150SF should be maintained. The room cavity ratio for these rooms is less efficient than for larger open office areas so a higher LPA is appropriate.

The 2009 IECC LPAs are based on ANSI/ASHRAE/IESNA 90.1 2004 levels. Current Washington State Energy Code LPAs are already below this level and requesting a reduction of 30% by 2010 would put us even further below the current request of the DOE to the 90.1 2010 committee (See attached comparison of LPA reduction trends). Once again, we can achieve the requested goals long term but this current plan does not give us a set plan of attack to work with. We suggest the committee form a task group of design, construction and regulatory members to establish and recommend a 5 to 10 year plan for implementation. Their recommendations should address long term goals in a logical, affordable manner that tracks with technology and economic considerations. The attached documents include our recommendations for interim incremental progress toward this goal based on recent project data and trends since 2001.

Respectfully submitted by:

WSEC TAG Minority Response Committee 2009

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